Rhubarb

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Scientific Name and Introduction: Rhubarb or pie plant (*Rheum rhabarbarum* L.) is a perennial belonging to the Polygonaceae family. Fleshy petioles are the edible portion. Petioles may be green, pink, or white depending on the variety. Field production in North America is mainly in Washington, Oregon, Michigan and Ontario. Rhubarb is forced in heated structures in Washington, Michigan and Ontario. Fresh rhubarb is mostly available in late Winter through Spring (Foust and Marshall, 1991), but limited supplies are available at other times.

Quality Characteristics and Criteria: Petiole color is associated with rhubarb quality. The order of preference is red, pink, and green. Petioles should appear fresh with no signs of desiccation or decay whether presented for sale intact or cut into sections.

Grades, Sizes and Packaging: U.S. grades for field-grown rhubarb include U.S. Fancy, U.S. No. 1, U.S. No. 2 and Unclassified (Anon, 1966). They are based primarily on petiole color, frequency of defects, and appearance. State and provincial grades have been developed for forced rhubarb. For example, Washington rhubarb is marketed as Fancy and Extra Fancy (McGregor, 1987) while Michigan rhubarb is classed as Choice, Small Fancy and Fancy (Pennell, 1976). Rhubarb is packed in 4.5, 6.8, or 9.0 kg (10, 15, or 20 lb) cartons (Anon, 1995).

Pre-cooling Conditions: Rhubarb petioles should be pre-cooled to 0 °C (32 °F) by hydro-cooling or forced-air cooling (McGregor, 1987).

Optimum Storage Conditions: Rhubarb petioles can be stored for 2 to 4 weeks at 0 °C (32 °F) with 95 to 100% RH (McGregor, 1987).

Controlled Atmosphere Considerations: CA storage has not yet been used for rhubarb.

Respiration Rates:

Temperature	mg CO_2 kg^{-1} h^{-1}
0 °C	9 to 13
5 °C	11 to 18
10 °C	25
15 °C	31 to 48
20 °C	40 to 57

To get mL kg^{-1} h^{-1}, divide the mg kg^{-1} h^{-1} rate by 2.0 at 0 °C (32 °F), 1.9 at 10 °C (50 °F), and 1.8 at 20 °C (68 °F). To calculate heat production, multiply mg kg^{-1} h^{-1} by 220 to get BTU per ton per day or by 61 to get kcal per metric ton per day.

Physiological Disorders: Petioles lacking small leaf lamina are subject to splitting when exposed to moisture. Over-mature petioles become pithy. Abrasion of petioles by sand or rough handling adversely affects appearance.

Postharvest Pathology: Several diseases may cause postharvest losses of rhubarb (Snowdon, 1992). Anthracnose (*Colletotrichum erumpens*) causes oval, soft, watery lesions on petioles. Bacterial soft rot

(*Pseudomonas marginalis, Erwinia caratovra*) causes a soft, slimy decay. Gray Mold (*Botrytis cinerea*) causes soft, brown lesions on petioles. Postharvest decay is usually traced to poor sanitation of hydro-cooling water, so proper sanitation with recommended storage temperature is essential to avoid infection.

Quarantine Issues: None.

Suitability as Fresh-cut Product: Not yet evaluated.

References:

Anonymous. 1966. United States standards for grades of rhubarb (field grown). USDA, Washington, DC.

Anonymous. 1995. The PACKER Sourcebook. Vance Publishing Co., Lenexa KS.

Faust, C.M. and D.E. Marshall. 1991. Culinary rhubarb production in North America: History and recent statistics. HortScience 26:1360-1363.

McGregor, B.M. 1987. Tropical products handbook. USDA Agric. Handbook No. 668.

Pennell, J.T. 1976. Rhubarb production. USDA Leaflet No. 555.

Snowdon, A.L. 1992. Color atlas of postharvest diseases and disorders of fruits and vegetables. Vol. 2, Vegetables. CRC Press, Boca Raton, FL.